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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/186,584 11/05/98 GREENFIELD

J EN998073

KEVIN P RADIGAN  
HESLIN AND ROTHENBERG  
5 COLUMBIA CIRCLE  
ALBANY NY 12203-5160

TM02/0125

EXAMINER

LEE, R

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 01/25/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/186,584

Applicant(s)  
Greenfield et al

Examiner  
Richard Lee

Group Art Unit  
2613



☐ Responsive to communication(s) filed on \_\_\_\_\_

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-31 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-31 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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1. The drawings are objected to because "121" as shown in Figure 1 of the drawings between block elements 25 and 41 should be changed to be provided between block elements 23 and 25 in order to agree with page 9, lines 9-13 of the Specification. Correction is required.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "reconstructing the run length encoded image of the macroblock" as claimed in claims 1, lines 13-15, claim 9, lines 13-15, claim 16, lines 15-17, and claim 27, lines 15-17, respectively, must be shown or the feature(s) canceled from the claim(s). It is noted that Figure 1 of the drawings only show the reconstruction of the DCT and quantization data (see elements 29, 31 of Figure 1). No new matter should be entered.
3. Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

- ✓ (1) claim 1, line 8, "the discrete cosine transform" shows no clear antecedent basis and therefore, "the" should be changed to "a";
- (2) ✓ claim 1, line 23, ✓ claim 9, line 23, ✓ claim 16, line 26, ✓ claim 27, line 26, "the host" shows no clear antecedent basis and therefore, "the" should be changed to "a", respectively;
- (3) ✓ claim 1, line 26, line 30, ✓ claim 4, line 6, line 9, ✓ claim 9, line 26, line 30, ✓ claim 16, line 30, line 34, ✓ claim 27, line 30, line 34, "the host (R)" shows no clear antecedent basis, respectively;

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(4) claim 1, line 28, claim 9, lines 27-28, “the external buffer (E)” shows no clear antecedent basis, respectively;

(5) claim 1, line 29, claim 9, line 29, claim 16, line 31, line 33, claim 27, line 31, line 33, “the number of bits encoded (E)” shows no clear antecedent basis, respectively;

(6) claim 1, line 31, line 34, claim 2, lines 3-4, claim 9, lines 30-31, claim 10, lines 6-7, claim 11, lines 6-7, claim 13, lines 6-7, claim 16, lines 34-35, lines 38-39, claim 17, line 4, claim 21, line 5, claim 22, line 5, claim 24, lines 4-5, claim 27, lines 34-35, claim 29, line 4, claim 30, line 4, claim 31, line 4, “the external buffer (BF)” shows no clear antecedent basis, respectively;

(7) claim 2, line 6, line 9, claim 10, line 8, claim 11, line 9, line 12, claim 13, line 9, lines 11-12, claim 14, line 4, claim 17, lines 6-7, lines 9-10, claim 18, lines 3-4, claim 21, lines 6-7, claim 22, lines 7-8, lines 10-11, claim 23, line 5, claim 24, lines 6-7, lines 9-10, claim 25, lines 4-5, claim 29, lines 5-6, claim 30, line 7, lines 9-10, claim 31, line 6, line 9, “the buffer fullness (BF)” shows no clear antecedent basis, respectively;

(8) claim 2, line 7, line 8, “the buffer threshold (BT)” shows no clear antecedent basis, respectively;

(9) claim 3, lines 3-4, “said comparing of buffer fullness (BF)” shows no clear antecedent basis;

(10) claim 3, lines 4-5, “the host-defined buffer threshold (BT)” shows no clear antecedent basis;

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(11) claims 6 and claim 19, wherein the claims claim the “MPEG-2” recommendation is indefinite because there are many versions of the MPEG recommendations and the recommends are continuously updated. The scope of the claim limitations cannot change over time, and unless the specification states a specific MPEG version and date or a copy of the MPEG recommendation is provided, the claims are indefinite;

(12) claim 9, line 8, “the discrete cosine transform” shows no clear antecedent basis and therefore “the” should be changed to “a”;

(13) claim 12, lines 4-5, “said comparing of said buffer fullness (BF)” shows no clear antecedent basis;

(14) claim 16, lines 8-9, “the discrete cosine transform” shows no clear antecedent basis and therefore “the” should be changed to “a”;

(15) claim 16, line 19, “said means for encoding” shows no clear antecedent basis;

(16) claim 18, lines 4-5, “the host-defined buffer threshold (BT)” shows no clear antecedent basis; and

(17) claim 27, lines 8-9, “the discrete cosine transform” shows no clear antecedent basis and therefore “the” should be changed to “a”.

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 1-6 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Greenfield et al of record (5,760,836).

Due to the indefiniteness of the claims as pointed out in the above paragraph (3), the Examiner wants to point out that the claims are being read in the broadest sense.

Greenfield et al discloses a FIFO feedback and control for digital video encoder as shown in Figures 1 and 5, and the same method and encoder for encoding a digital video image stream in the encoder (see Figure 1), comprising means (21 of Figure 1) for spatial compression of still images in the digital video image stream and means (41 of Figure 1) for temporal compression between the still images, wherein the means for spatial compression comprises means for converting a time domain image of a macroblock to a frequency domain image of the macroblock (see column 1, lines 55-63), means for taking the discrete cosine transform of the frequency domain image (see column 1, lines 55-63), means for transforming the discrete cosine transformed macroblock image by a quantization factor (see 23 of Figure 1), and means for run length encoding the quantized discrete cosine transformed macroblock image (see 25 of Figure 1), wherein the means for temporal compression comprises means for reconstructing the run length

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encoded, quantized, discrete cosine transformed image of the macroblock (see Figure 1), means for searching for a best match macroblock, and means for constructing a motion vector therebetween (see column 6, line 55 to column 7, line 11), the means for encoding thereby forming a bitstream comprising run length encoded, quantized, discrete cosine transformed macroblocks and motion vectors and passing the bitstream to and through an external buffer to a transmission medium (see column 6, line 55 to column 7, line 11), comprising means for feeding back to the encoder an external read signal from the host (see 51 and FIFO\_RD of Figure 5, and columns 5-7), and logic in the encoder for incrementing an on-chip counter each time that the external buffer is read and calculating therefrom the number of bits read by the host (see column 5, lines 31-50), the logic in the encoder being further adapted to monitor the number of bits encoded and written into the external buffer and subtract from the number of bits encoded the number of bits read by the host to obtain the fullness of the external buffer (see column 5, lines 53-59), and wherein the logic in the encoder is further adapted to provide the host with a dynamic buffer level indicator in real time indicative of the fullness of the external buffer (see columns 5-7); wherein the logic adapted to provide the host with a dynamic buffer level indicator comprises logic adapted to compare the fullness of the external buffer with a buffer threshold defined by the host and to provide a high level indicator when the buffer fullness is greater than the buffer threshold and a low level indicator when the buffer threshold is greater than the buffer fullness (see column 6, lines 18-29); further comprising a buffer threshold register (153 of Figure 5) within the encoder coupled to the logic adapted to compare the buffer fullness to the host defined buffer

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threshold, wherein the external buffer comprises at least one FIFO buffer and the encoder comprises an MPEG-2 video encoder (see column 1, column 6, lines 18-45, and Figure 65); an external buffer configuration register (151 of Figure 5) in the encoder for retaining multiple external buffer configuration values, and wherein the calculating in the encoder the number of bits read by the host includes employing a predefined configuration value of the external buffer configuration register in determining the number of bits read by the host upon receipt of each buffer read signal from the host, and wherein the multiple external buffer configuration values retained in the external buffer configuration register comprise at least some of 1, 2, 4, and 8 byte buffer configuration values, each value being representative of a number of bytes read from the external buffer with each buffer read signal from the host for a respective external buffer configuration (see column 5, lines 31-50).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-15 and 20-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenfield et al as applied to claims 1-6 and 16-19 in the above paragraph (5), and further in view of Choe et al (6,094,696).

Greenfield et al discloses substantially the same method and encoder for encoding a digital video image stream in the encoder as above, further including wherein the external buffer



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comprises one of a field buffer or cascaded FIFO buffers (see Figure 5), continuously comparing the fullness of the external buffer to a predefined buffer size and providing the host with a high level indicator when the buffer fullness is greater than or equal to the buffer size and a low level indicator when the buffer size is greater the buffer fullness, and providing an on chip buffer size register for holding a host defined buffer size value for use in the comparing of the buffer fullness to the buffer size (see columns 5-6).

Greenfield et al does not particularly disclose, though, providing from the encoder to the host in real time a dynamically updated flag comprising at least one of a buffer empty flag, a buffer almost full flag and a buffer full flag as claimed in claims 7-11, 13, 20-22, 24, 27, and 29-31. However, Choe et al discloses a virtual serial data transfer mechanism and teaches the conventional use of a buffer management system wherein buffer full and buffer empty flags are set (see column 2, line 62 to column 3, line 56). Therefore, it would have been obvious to one of ordinary skill in the art, having the Greenfield et al and Choe et al references in front of him/her and the general knowledge of flag indicating statuses for a buffer management system, would have had no difficulty in providing the buffer flagging system as taught by Choe et al as part of the buffer management within Figure 5 of Greenfield et al for the same well known flag identification purposes as claimed.

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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Proctor et al, Carr et al, Butter et al, Murdock et al, and Boice et al disclose various types of video image compression systems.

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-9051, (for formal communications intended for entry)

**Or:**

(703) 308-6306 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")


Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

  
RICHARD LEE  
PRIMARY EXAMINER

Richard Lee/rl 

1/23/01